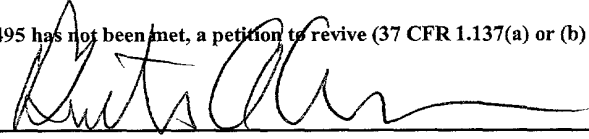


TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER 1625/00032	
		U.S. APPLICATION NO. (Unknown, See 37 CFR 1.53) 09/700372	
INTERNATIONAL APPLICATION NO. PCT/FI99/00342	INTERNATIONAL FILING DATE 28 April 1999	PRIORITY DATE CLAIMED 15 May 1998	
TITLE OF INVENTION Method and Apparatus for Manufacturing a Thin-Walled Article			
APPLICANT(S) FOR DO/EO/US Hatjasalo, Leo , Valtanen, Jarkko			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. § 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the Annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Items 11. to 16. below concern other document(s) or information included: 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter 16. <input checked="" type="checkbox"/> Other items or information: International Search Report, International Preliminary Examination Report			

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U.S. APPLICATION NO. (If known, see 37 CFR 1.53) 09/700372		INTERNATIONAL APPLICATION NO. PCT/FI99/00342		ATTORNEY'S DOCKET NUMBER 1625/00032	
<input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO.....\$860.00 International preliminary examination fee paid to USPTO (37 CFR 1.482)\$690.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$760.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1,000.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....\$100.00				CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$1000	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
Claims	Number Filed	Number Extra	Rate		
Total Claims	20- 20 =	0	X \$18.00	\$	
Independent Claims	2- 3 =	0	X \$80.00	\$	
Multiple dependent claim(s)(if applicable)			+ \$270.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$1000	
Reduction by 1/2 for filing by small entity, if applicable.				\$ 500	
SUBTOTAL =				\$ 500	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
TOTAL NATIONAL FEE =				\$ 500	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	
TOTAL FEES ENCLOSED =				\$ 500	
				Amount to be: refunded \$	
				charged \$	
a. <input checked="" type="checkbox"/> A check in the amount of \$500 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. <u>22-0185</u> in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Director is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>22-0185</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status SEND ALL CORRESPONDENCE TO: Pollock, Vande Sande & Amernick, R.L.L.P. 1990 M Street, N.W., Suite 800 Washington, DC 20036-3425					
				SIGNATURE  BURTON A. AMERNICK NAME 24,852 REGISTRATION NUMBER	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
: :
Leo Hatjasalo et al. :
: :
Serial No.: To be assigned : Art Unit: To be assigned
: :
Filed: Herewith : Examiner: To be assigned
: :
For: Method and Apparatus for : Atty Docket: 1625/00032
Manufacturing a Thin-Walled :
Article :
: :
:

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to initial examination, please amend the above-captioned case as follows.

IN THE CLAIMS

Please amend the claims as follows.

Claim 3, line 1, delete "or 2".

Claim 4, line 1, delete "any of the preceding".

Claim 4, line 2, delete "claims 1-3" and insert ---claim 1---.

Claim 5, line 1, delete "any of the preceding".

Claim 5, line 2, delete "claims 1-3" and insert ---claim 1---.

Claim 6, line 1, delete "any of the preceding".

Claim 6, line 2, delete "claims 1-5" and insert ---claim 1---.

Claim 7, line 1, delete "any of the preceding".

Claim 7, line 2, delete "claims 1-6" and insert ---claim 1---.

Claim 10, line 1, delete "or 9".

Please add the following new claims.

11. A method as set forth in claim 2, wherein the surface of said mould is treated with surface-tension regulating surfactants, such as silicone-, a polyolefine-based and/or a corresponding agent, especially for facilitating the demoulding/releasing of a finished article from the mould, and/or the surface tension of the material to be sprayed is adjusted relative to the surface tension of a mould to a level that results in a uniform, thin material thickness.

12. A method as set forth in claim 2, wherein an elastic product, such as a piece of clothing, a glove, a condom, and/or the like, is manufactured by spraying the manufacturing material in the electrical field to the open mould set at an electric potential.

13. A method as set forth in claim 3, wherein an elastic product, such as a piece of clothing, a glove, a condom, and/or the like, is manufactured by spraying the manufacturing material in the electrical field to the open mould set at an electric potential.

14. A method as set forth in claim 2, wherein the manufacturing material is heated by the action of a heating unit, whereafter ingredients of the multi-component manufacturing material are mixed together, the manufacturing material is charged electrically and sprayed by the action of a processing unit, such as a spray bell or the like.

15. A method as set forth in claim 3, wherein the manufacturing material is heated by the action of a heating unit, whereafter ingredients of the multi-component manufacturing material are mixed together, the manufacturing material is charged electrically and sprayed by the action of a processing unit, such as a spray bell or the like.

16. A method as set forth in claim 2, wherein a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould with two or more treatment blocks, which can be set at voltage levels substantially different from each other.

17. A method as set forth in claim 3, wherein a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould with two or more treatment blocks, which can be set at voltage levels substantially different from each other.

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18. A method as set forth in claim 4, wherein a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould with two or more treatment blocks, which can be set at voltage levels substantially different from each other.

19. A method as set forth in claim 5, wherein a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould with two or more treatment blocks, which can be set at voltage levels substantially different from each other.

20. A method as set forth in claim 2 wherein the article is manufactured by using two or more processing units, essentially facing each other, by moving the mould in the spraying situation, and/or by changing, during the spraying cycle, one or more process parameters, such as the volume flow, viscosity and/or the like of the manufacturing material or a component thereof, and/or the electrical field, such as the voltage level in one or more treatment blocks of the mould.

REMARKS

The claims have been amended to eliminate multiple dependency and to improve their format. None of these amendments is believed to involve any new matter. Accordingly, it is respectfully requested that the foregoing amendments be entered, that the application as so amended receive an examination on the merits, and that the claims as now presented receive an early allowance.

Respectfully submitted,



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Method and apparatus for manufacturing a thin-walled article

5 The present invention relates to a method for manufacturing a thin-walled article, wherein a single- or multi-component, essentially polymer-based material, such as plastics, elastomers, and/or the like, is sprayed in an electrical field in an electrically charged state.

10 At present, it is conventional to employ so-called electrostatic coating e.g. in automotive painting. This application is generally carried out by using metal-based coating materials, whose electrical charge and spraying in an electrical field can be achieved in
15 the discussed application in a sufficiently homogeneous manner, such that the automobile is provided all over with a sufficiently thick layer of paint. However, the above type processing is inconvenient to carry out in practice with a sufficient reliability,
20 especially when used in connection with plastic-based materials because of a poor applicability of this type of materials to the discussed processing. On the other hand, it is perfectly well known to provide the plastics to be sprayed with an electrical charge by
25 using suitable polarity/resistivity regulating materials, such as chlorine-/glycol-based materials or the like. Despite this, however, this type of electrical processing of a plastic material has not been possible to perform thus far with a sufficient reliability,
30 which is why e.g. conventional thin-walled ordinary articles, such as gloves, condoms or the like, must still be manufactured largely by using a traditional dip process.

35 On the other hand, the International patent publication WO 94/22594 discloses a process for coating especially objects with varying shapes, which is based on

the fact that a multi-component material, one comprising a cold curing and inert, e.g. solvent-free resin, is electrostatically applied to a surface of an object, whereafter at least one fluid material is sprayed onto the resin before it has cured.

The cited publication does not present any concrete solution for performing the above-described task, as it mostly discloses various alternative working principles for providing a coating. On the basis of technology described in the cited publication, it is not possible in practice to make sure that especially a flow of resin-based, electrically processible material be applied particularly to a multi-dimensionally shaped article in such a way that the direct result of a spraying cycle would be a finished end product immediately after its removal from the mould or that each area/point of the article would be provided with an exactly desired material thickness, which hence remains to be a central problem, especially in terms of electrically processing plastic-based materials.

An object of this intention is to provide a decisive remedy for the above-described problems and hence to raise substantially the available prior art. In order to achieve this object, a method of the invention is principally characterized in, that the thin-walled article is manufactured in an electrical field by spraying an electrically charged material into the contact with a mould set at an electric potential, after which spraying cycle the article is, at least in terms of its appearance, immediately a finished product after its removal/separation from the mould.

The method of the invention offers some major advantages, including e.g. its technical functionality and applicability, by virtue of which it is practically

for the first time possible to provide a sufficiently reliable result in most diversified applications, even when using a plastic-based manufacturing material in connection with the above type of electrical processing. Usefulness of the method is based on the fact that, in principle, a single spraying cycle is sufficient for manufacturing even a completely finished end product, which does not necessarily require any finishing operations when using properly blended process materials, regarding e.g. colouring or other mechanical/physical characteristics, such as surface tension, surface strength, colouring, or the like. When applying the method of the invention in a preferred fashion, it is also possible to manufacture articles, whose wall thickness is intentionally made in certain areas different from other areas. Furthermore, the method of the invention can be applied in a traditional manner, e.g. in a so.-called electrostatic fashion, such that, according to an application preferably utilized in the method, the predetermined voltage levels in the various treatment blocks of a mould included therein are maintained substantially constant through the entire spraying cycle. On the other hand, it is also possible in this connection to utilize a dynamically controlled spraying process, such that one or more process parameters are changed continuously or periodically and/or that the mould is moved during the spraying cycle.

Preferred applications for the method of the invention are set forth in the non-independent claims directed to a method.

The invention relates also to an apparatus operating in accordance with the method, which is defined in more detail in the preamble of the independent claim directed to the same. The principally characterizing

features of the apparatus are set forth in the characterizing clause of said claim.

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5 The most important advantages offered by the apparatus of the invention include technical reliability in its operation and function. Another advantage offered by the apparatus of the invention is that a mould included therein, which is removable/separable from an article to be manufactured and which is either negative and/or positive, depending on a given article to be manufactured, renders it possible to manufacture most diverse products. In a preferred embodiment of the apparatus, it is also possible to utilize treatment blocks, included in the mould and to be set at voltage levels different from each other, the voltage levels mathematically predetermined therein effecting in the actual spraying process a totally controlled flow of material to the wall of a given target being treated/manufactured, e.g. for enabling the very above-mentioned fluctuations in material thickness. Depending on an article to be processed, it is also possible to provide the apparatus with a control unit, operating in principle e.g. according to a traditional, i.e. e.g. in a so-called electrostatic manner, such that the predetermined voltage levels in the treatment blocks of a mould are substantially constant through the entire spraying cycle. On the other hand, it is also possible to make said control unit dynamical, such that certain process parameters are changed continuously or with an on/off principle during the spraying cycle.

35 Preferred embodiments for the apparatus of the invention are set forth in the non-independent claims directed to an apparatus.

5 fig. 1 shows the operating principle for a method
and an apparatus of the invention, and

The invention relates to a method for manufacturing a thin-walled article, wherein a single- or multi-component, essentially polymer-based material 1, such as plastics, elastomers, and/or the like, is sprayed in an electrical field E in an electrically charged state. The thin-walled article is manufactured in the electrical field E by spraying II an electrically charged I material into the contact with a mould 2 set at an electric potential, after which spraying cycle II the article is, at least in terms of its appearance, immediately a finished product after its removal/separation from the mould 2.

25 In a further preferred application of the method, a
three-dimensional, thin-walled article is manufactured
by spraying a manufacturing material in the electrical
field E to an open mould 2 set at an electric poten-
tial. In yet another preferred application of the
30 method, the surface of said mould 2 is treated with
surface-tension regulating surfactants, such as a
silico-ne-, a polyolefine-based and/or a corresponding
agent, especially for facilitating the removal/separa-
tion of a finished article from the mould 2. In a
35 further preferred application, the surface tension of
a material to be sprayed is adjusted relative to the
surface tension of a mould to a level that results in
a uniform, thin material thickness.

Furthermore, in a preferred application of the method, said method is used for manufacturing an elastic product, such as a garment, a condom, or e.g. a glove just as shown in fig. 2, by spraying II the manufacturing material 1 in the electrical field E to the open mould 2 set at an electric potential.

In still another preferred application of the method, especially in reference to the operating principle depicted in fig. 1, the manufacturing material 1 is heated by the action of a heating unit 01, whereafter ingredients 1a, 1b of the multi-component manufacturing material are mixed together 02, the manufacturing material 1 is charged electrically I and sprayed II by the action of a processing unit 4, such as a spray bell or the like.

In a preferred application, a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould 2 with two or more treatment blocks Li, which can be set at voltage levels substantially different from each other, e.g. by applying the principle shown in fig. 2.

In yet another preferred application of the method, the article is manufactured by using two or more processing units 4, essentially facing each other, by moving the mould 2 in the spraying situation II, and/or by changing, during the spraying cycle II, one or more process parameters, such as the volume flow, viscosity and/or the like of a manufacturing material or a component thereof, and/or the electrical field E, such as the voltage level in one or more treatment blocks Li of the mould.

First of all, the above type application of the method is based on the fact that a given target to be processed, e.g. a glove as just depicted in fig. 2, is

previously modelled and this is used as a basis for determining calculated or so-called tabulated optimal voltage levels for each critical point/area of a target, such that the unequal voltage levels established in these areas serve either to boost or suppress the electrical field during the actual spraying II for a controlled management of the flows of material. The discussed mould can be quite simply assembled by using of wires or the like electrically conducting surfaces appropriately included in each treatment block.

The apparatus operating in accordance with the above-described method comprises, unlike the traditional solutions, especially a mould 2 which can be set at an electric potential and which is removable/separable from an article that is formed after spraying II an electrically charged flow of material to the mould 2 and that is a finished product at least in terms of its appearance.

Particularly in reference to the basic operating sketch shown in fig. 1, the apparatus comprises a heating unit 01 intended for heating basic ingredients 1a, 1b pressurized by means of cylinders S, and a processing unit 4, such as a spray bell or the like, for mixing 02 said ingredients together, for charging the same electrically I, and for producing a material spray II from the prepared manufacturing material 1.

In a preferred embodiment, the apparatus comprises a mould 2, including two or more treatment blocks Li whose voltage levels can be set to essentially differ from each other, and/or a control unit C for changing, during the spraying cycle II, one or more process parameters, such as the volume flow, viscosity, and/or the like of a manufacturing material or a component thereof, and/or the electrical field E, such as the

voltage level in one or more treatment blocks Li of the mould 2.

5 It is obvious that the invention is not limited to the above-described or explained applications, but it can be subjected to major modifications within the scope of the basic inventional concept. Thus, it is naturally clear that the method of the invention can be utilized in a type of operation discussed in more
10 detail in the Applicant's co-pending patent application "Method and apparatus for electrically controlling a flow of material". Moreover, it is naturally obvious that the method and apparatus of the invention can be used for manufacturing rigid three-dimensional articles as well as naturally also similar elastic products. In practical processing, the voltage level of the apparatus can be chosen to serve any given purpose the best possible way but, in principle, the type of equipment tested by the Applicant with a maximum
15 voltage of about 100 kV is capable of achieving a sufficiently good end result in a wide variety of processes.
20

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Claims

1. A method for manufacturing a thin-walled article, wherein a single- or multi-component, essentially polymer-based material (1), such as plastics, elastomers, and/or the like, is sprayed in an electrical field (E) in an electrically charged state, **characterized in**, that the thin-walled article is manufactured in the electrical field (E) by spraying (II) an electrically charged material into the contact with a mould (2) set at an electric potential, after which spraying cycle (II) the article is, at least in terms of its appearance, immediately a finished product after its demoulding/releasing from the mould (2).
2. A method as set forth in claim 1, **characterized in**, that a three-dimensional, thin-walled article is manufactured by spraying (II) the manufacturing material (1) in the electrical field (E) to the open mould (2) set at an electric potential.
3. A method as set forth in claim 1 or 2, **characterized in**, that the surface of said mould (2) is treated with surface-tension regulating surfactants, such as a silicone-, a polyolefine-based and/or a corresponding agent, especially for facilitating the demoulding/releasing of a finished article from the mould (2), and/or the surface tension of the material (1) to be sprayed is adjusted relative to the surface tension of a mould to a level that results in a uniform, thin material thickness.
4. A method as set forth in any of the preceding claims 1-3, **characterized in**, that an elastic product, such as a piece of clothing, a glove, a condom, and/or the like, is manufactured by spraying (II) the manu-

facturing material (1) in the electrical field (E) to the open mould (2) set at an electric potential.

5. A method as set forth in any of the preceding claims 1-3, **characterized in**, that the manufacturing material (1) is heated by the action of a heating unit (01), whereafter ingredients (1a, 1b) of the multi-component manufacturing material are mixed together (02), the manufacturing material (1) is charged electrically (I) and sprayed (II) by the action of a processing unit (4), such as a spray bell or the like.

6. A method as set forth in any of the preceding claims 1-5, **characterized in**, that a desired wall thickness for the article to be manufactured is achieved at any given point by providing the mould (2) with two or more treatment blocks (Li), which can be set at voltage levels substantially different from each other.

7. A method as set forth in any of the preceding claims 1-6, **characterized in**, that the article is manufactured by using two or more processing units (4), essentially facing each other, by moving the mould (2) in the spraying situation (II), and/or by changing, during the spraying cycle (II), one or more process parameters, such as the volume flow, viscosity and/or the like of the manufacturing material or a component thereof, and/or the electrical field (E), such as the voltage level in one or more treatment blocks (Li) of the mould (2).

8. An apparatus for manufacturing a thin-walled article, said apparatus being intended for spraying a single- or multi-component, essentially polymer-based material, such as plastics, elastomers, and/or the like, in an electrical field (E) in an electrically

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charged state, **characterized in**, that the apparatus comprises a mould (2) which can be set at an electric potential and which is removable/separable from an article that is formed after spraying (II) an electrically charged flow of material to the mould (2) and that is a finished product at least in terms of its appearance.

9. An apparatus as set forth in claim 8, **characterized in**, that the apparatus comprises a heating unit (01) for heating a manufacturing material (1), and a processing unit (4), such as a spray bell or the like, for mixing together (02) ingredients (1a, 1b) of the multi-component manufacturing material, for charging the manufacturing material (1) electrically (I), and for producing a material spray (II) therefrom.

10. An apparatus as set forth in claim 8 or 9, **characterized in**, that the apparatus comprises a mould (2), including at least two treatment blocks (Li) whose voltage levels can be set to essentially differ from each other, and/or a control unit (C) for changing, during the spraying cycle (II), one or more process parameters, such as the volume flow, viscosity, and/or the like of the manufacturing material or a component thereof, and/or the electrical field (E), such as the voltage level in one or more treatment blocks (Li) of the mould (2).

(57) Abstract

5 The invention relates to a method for manu-
facturing a thin-walled article, wherein a
single- or multi-component, essentially
polymer-based material (1), such as plastics,
elastomers, and/or the like, is sprayed in an
10 electrical field (E) in an electrically charged state. The thin-walled article is manu-
factured in the electrical field (E) by
spraying (II) an electrically charged mate-
rial into the contact with a mould (2) set at
an electric potential, after which spraying
15 cycle (II) the article is, at least in terms
of its appearance, immediately a finished
product after its demoulding/releasing from
the mould (2). The invention relates also to
an apparatus operating in accordance with the
20 method.

Fig. 1

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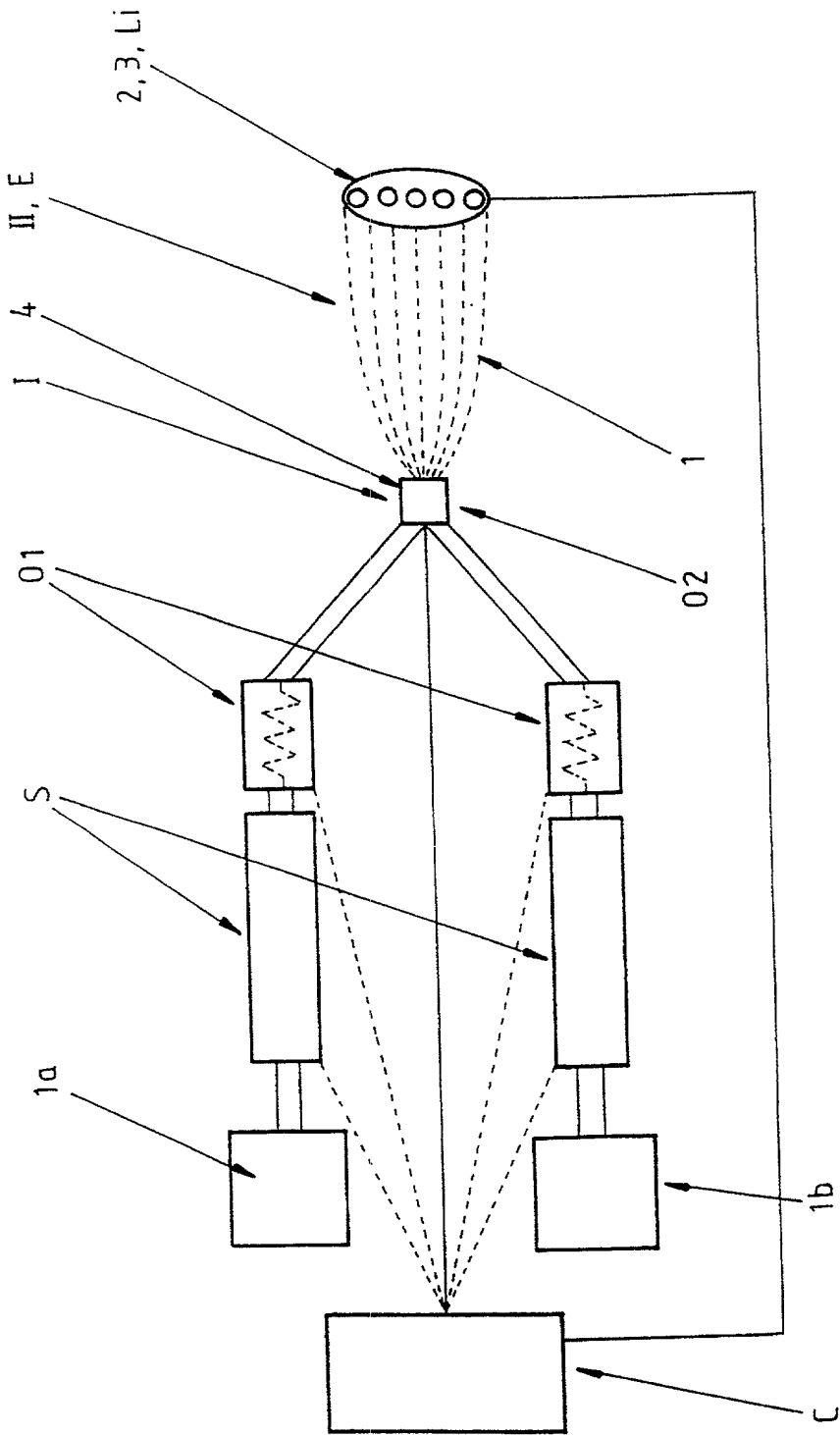


FIG.1

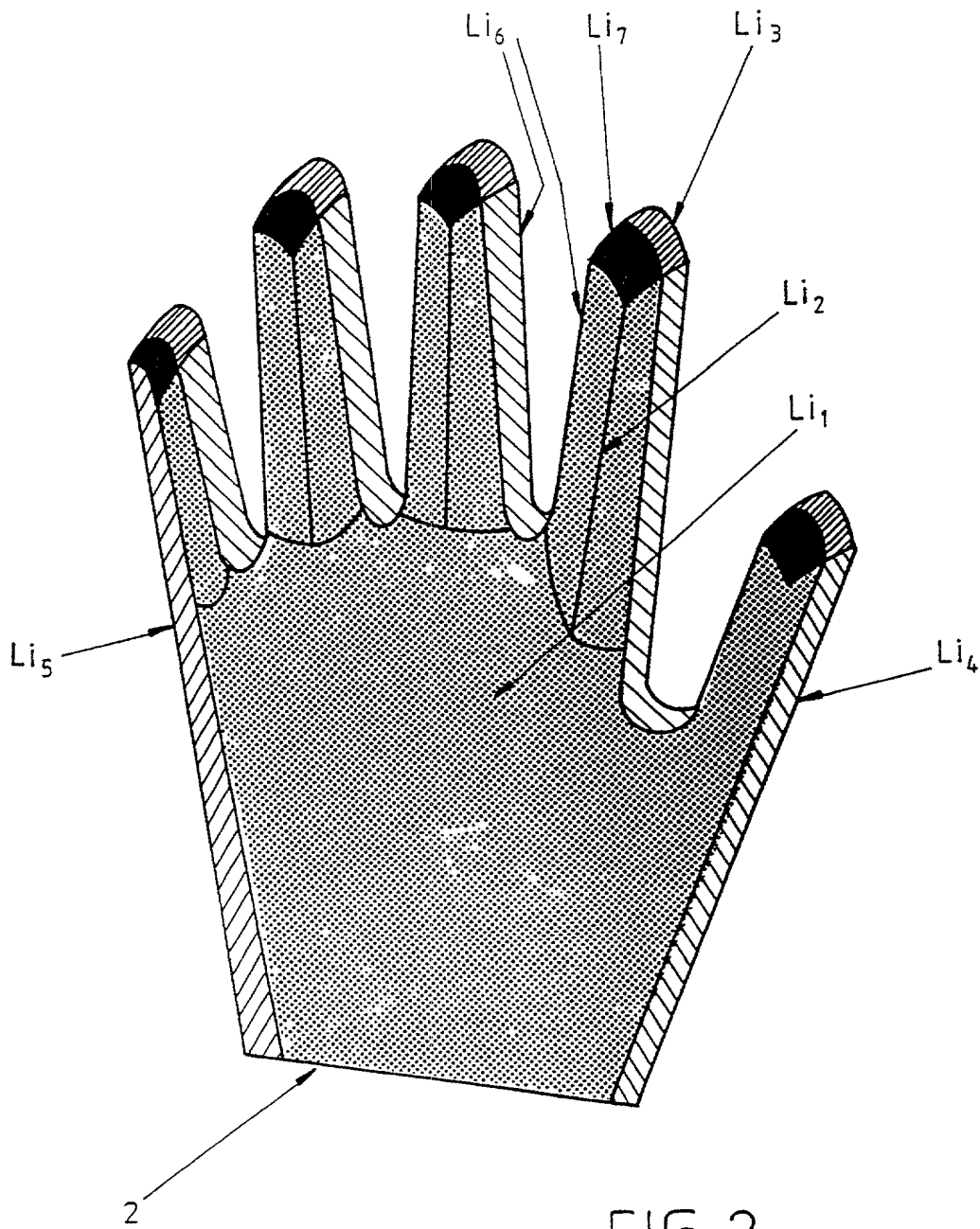


FIG. 2

DECLARATION FOR PATENT APPLICATION

1625/00032

I, a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Method and Apparatus for Manufacturing a Thin-Walled Article

specification of which: (check one)

☐ is attached hereto. ☒ was filed on April 28, 1999, as United States Patent Application Serial No. or PCT International Application Number PCT/EP99/00342, and was amended on 19 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment entered to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 CFR § 1.56(a).

Prior Foreign Application(s): I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate listed below, or § 365(a) of any PCT international application which designated at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

			Priority Claimed	
<u>981083</u>	<u>Finland</u>	<u>15/May/1998</u>	<input checked="" type="checkbox"/> [XX]	<input type="checkbox"/> []
(Application No.)	(Country)	(Day/Month/Year Filed)	YES	NO
			<input type="checkbox"/> []	<input type="checkbox"/> []
(Application No.)	(Country)	(Day/Month/Year Filed)	YES	NO
			<input type="checkbox"/> []	<input type="checkbox"/> []
(Application No.)	(Country)	(Day/Month/Year Filed)	YES	NO

reby claim the benefit under Title 35, United States Code § 119(c) of any United States provisional application(s) listed below:

Application No.	Filing Date
<u> </u>	<u> </u>

reby claim the benefit under 35 U.S.C. § 120 of any United States application(s) listed below or 34 U.S.C. § 365(c) of any PCT International Application designating the United States of America listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or PCT application in the manner provided by 35 U.S.C. § 112, first paragraph, I acknowledge the duty to disclose material information as required in 37 CFR § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(U.S. or PCT Application Serial No.)	(U.S. or PCT Filing Date)	(Status - patented, pending, abandoned)
<u> </u>	<u> </u>	<u> </u>
(U.S. or PCT Application Serial No.)	(U.S. or PCT Filing Date)	(Status - patented, pending, abandoned)
<u> </u>	<u> </u>	<u> </u>

I hereby appoint the following registered practitioners. George Vande Sande, Registration No. 17,276; Burton A. Amernick, Registration No. 24,852; Richard Amernick, Registration No. 18,741; Townsend M. Belser, Jr., Registration No. 22,956; Morris Liss, Registration No. 24,510; Martin Abramson, Registration No. 18,787; George R. Pettit, Registration No. 27,369; Elzbieta Chlopecka, Registration No. 32,767; Eric J. Franklin, Registration No. 37,134; William E. Curry, Registration No. 43,572; David W. Ward, Registration No. 45,198, and John A. Evans, Ph.D., Registration No. 44,100, with full power of substitution and execution, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Send Correspondence and Direct Telephone Calls to:

Burton A. Amernick
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

name of sole or first inventor Leo Hatjasalo

inventor's Signature

Leo Hatjasalo

Date 24th of October, 2000

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☒ See next page for additional inventors

DECLARATION FOR PATENT APPLICATION

Page 2

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All name of third joint inventor (if any) _____

inventor's Signature _____ Date _____
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All name of fourth joint inventor (if any) _____

inventor's Signature _____ Date _____
Residence Address _____
Citizenship _____
Post Office Address _____

All name of fifth joint inventor (if any) _____

inventor's Signature _____ Date _____
Residence Address _____
Citizenship _____
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All name of sixth joint inventor (if any) _____

inventor's Signature _____ Date _____
Residence Address _____
Citizenship _____
Post Office Address _____

All name of seventh joint inventor (if any) _____

inventor's Signature _____ Date _____
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Citizenship _____
Post Office Address _____

All name of eighth joint inventor (if any) _____

inventor's Signature _____ Date _____
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Citizenship _____
Post Office Address _____